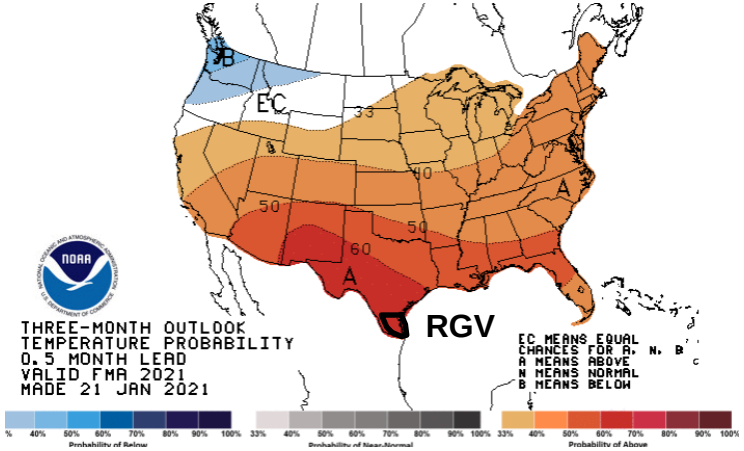
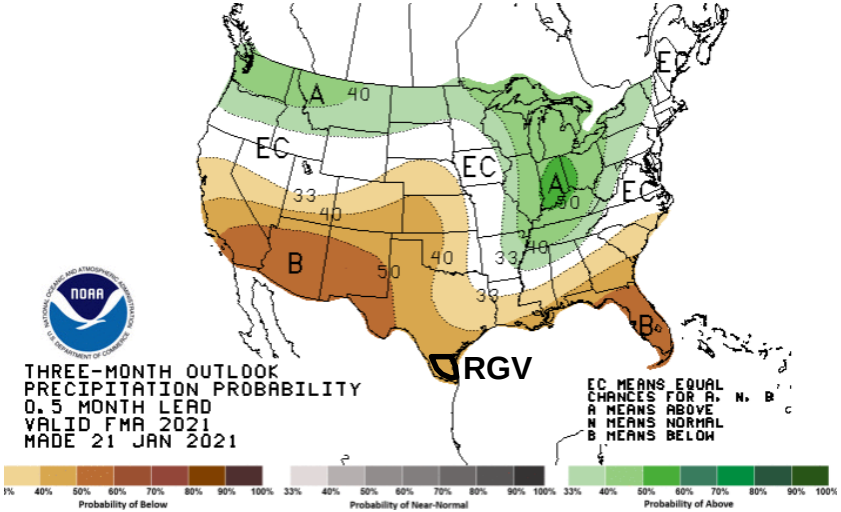
NOAA February to April 2021 Outlook Perspective for the Rio Grande Valley/Deep S. Texas Region

January 21, 2020

Barry Goldsmith, NWS Brownsville/Rio Grande Valley, Texas





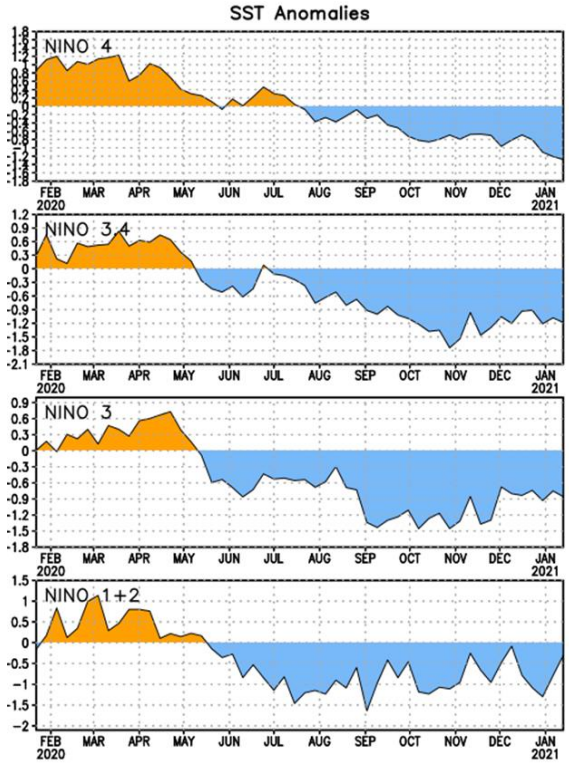
Key Takeaways

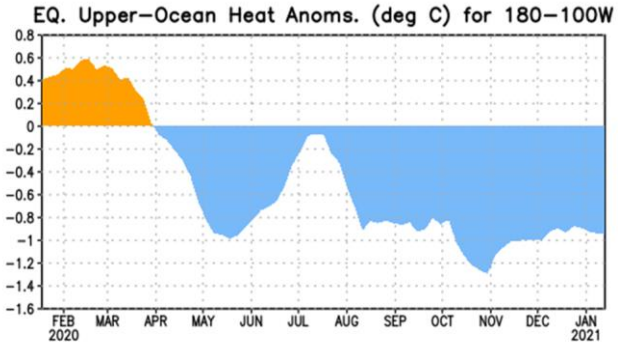
- Above to much above average temperatures and below average precipitation is forecast
- Based on this forecast becoming reality:
  - **Drought** will **worsen by the end of April**. **Extreme Drought** will cover most agricultural areas with developing pockets of **Exceptional Drought** by April 30th.
  - **Wildfire spread threat will increase through the season**, based on the combination of remnant fuel "loading" with fuels that continue to remain/become very dry ("cured"). March and April could be particularly ripe in low humidity events
  - **Municipal and Agricultural water shortages** are likely to become an issue in mid to late spring as Falcon Reservoir remains low to begin the season
  - The threat for **Widespread Severe Weather (Wind/Hail)** is slim to none, but local events cannot be ruled out.

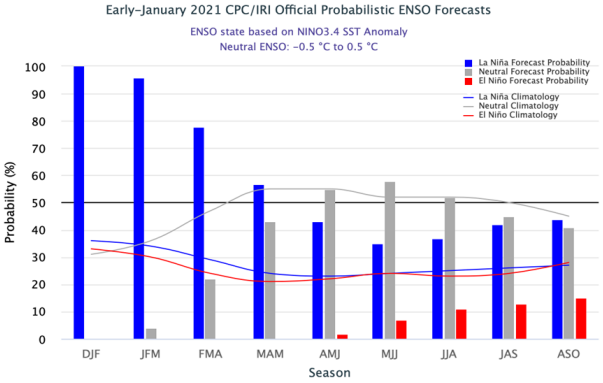
The “Why” of the Forecast: La Nina, Locked In

- Moderate La Niña continues (blue colored areas; -1 to -1.5), and should remain so through March or April
- Persistent warmth over several years in the southwest U.S./northern Mexico is expected to continue

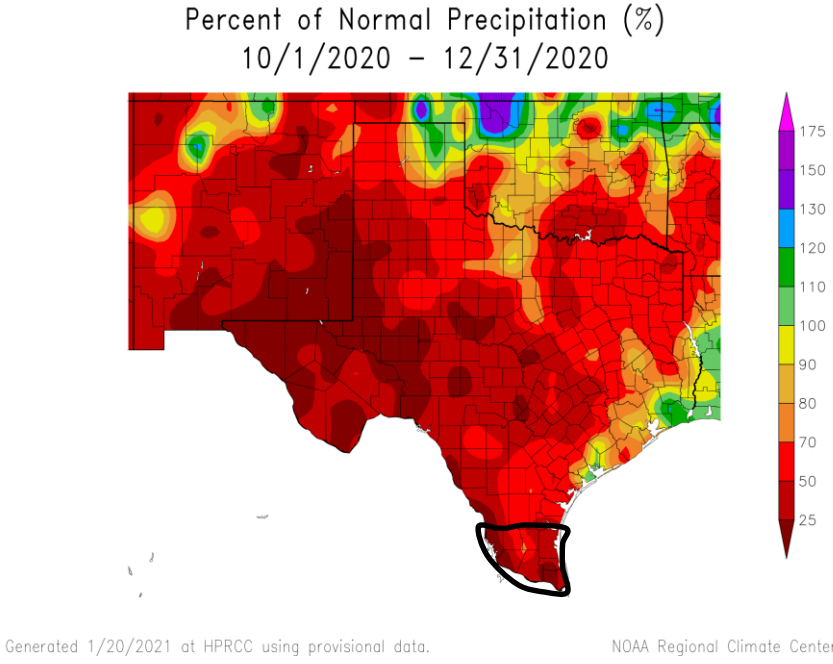
Year	DJF	JFM	FMA	MAM	AMJ	MJJ	JJA	JAS	ASO	SON	OND	NDJ
2020	0.5	0.6	0.5	0.3	0.0	-0.2	-0.4	-0.6	-1.0	-1.2	-1.3	

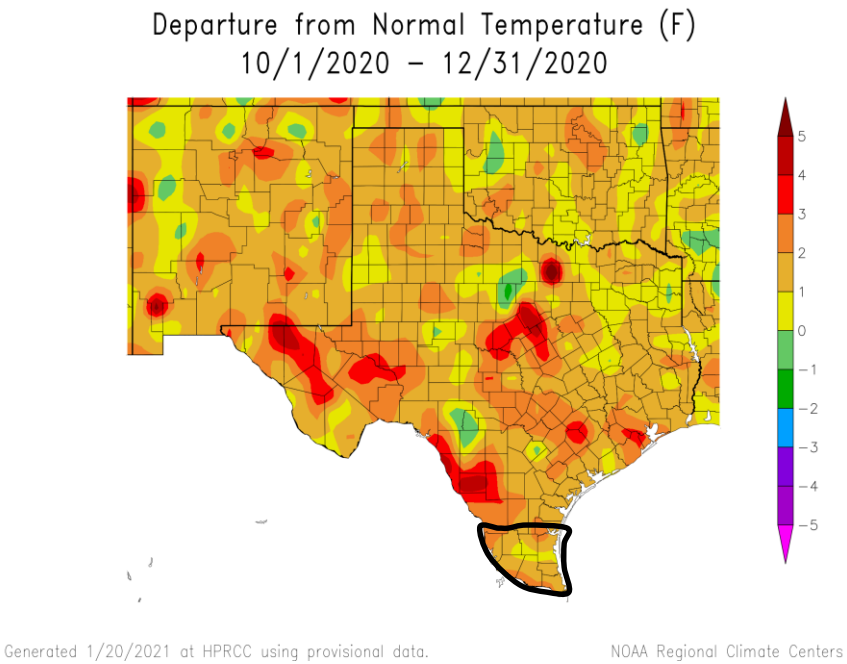






October through December 2020: Setting the Table

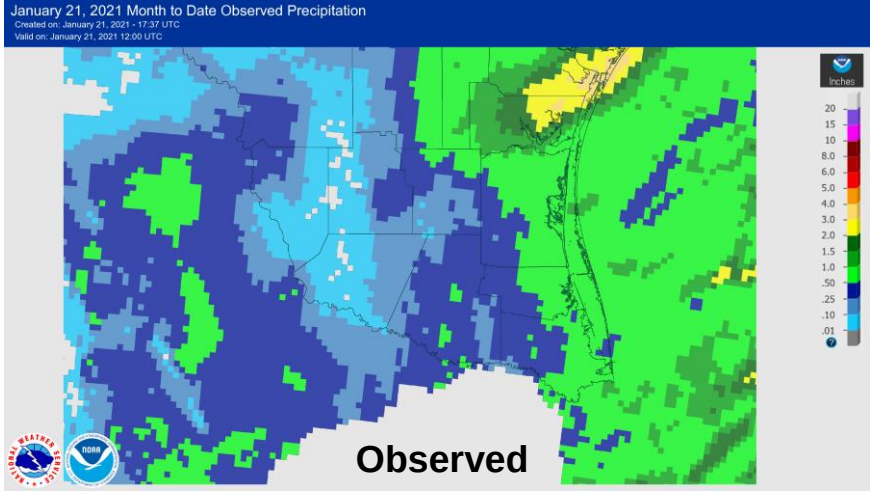


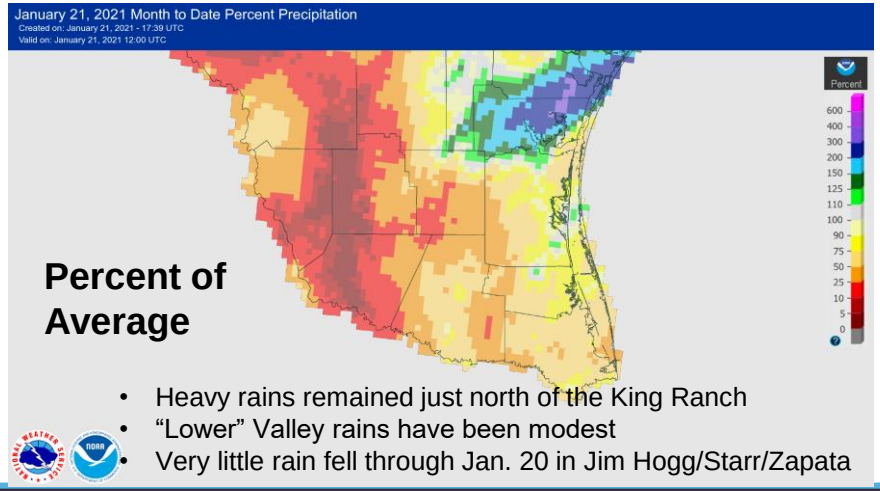


- Dry to Very Dry Compared with Average. Rainfall generally 0.5 to 2 inches (average: 4 to 6 inches)
- Temperatures 1 to 3 degrees above average; November was well above (4 to 6 degrees), while October and December were closer to average (1 to 2 degrees)
- Due to frequent “dry” fronts, drought worsened rapidly by the end of 2020

January 2021 So Far…

- Dry, with more “cooler” days than “warmer” days. Main rain along the coast.
- Temperatures (through 20th) were about 1-2 degrees below average
- Minor ranchland freezes on January 1, 13, and 16 (Zapata to Kenedy; N. Hidalgo and W. Willacy)
- Just one “cold” rain day, January 9/10 – mainly along/east of US 77
- Most fronts came through “dry”, except January 10.
- Fuels (grasses/brush/small trees) remained “cured” across most inland areas; worsened by minor freezes





- Heavy rains remained just north of the King Ranch
- “Lower” Valley rains have been modest
- Very little rain fell through Jan. 20 in Jim Hogg/Starr/Zapata

2020 Temperatures: Top Five Warmest; Nearly All-Time for Some

Maximum 1-Year Mean Avg Temperature for Brownsville Area, TX (ThreadEx)

Click column heading to sort ascending, click again to sort descending

Rank	Value	Ending Date	Missing Days
1	77.3	2012-12-31	0
2	77.2	2020-12-31	0
3	77.2	2017-12-31	0
4	76.6	2019-12-31	0
5	76.4	2016-12-31	0
6	76.4	2018-12-31	0
7	76.1	2011-12-31	0
8	76.0	2006-12-31	0
9	75.8	2005-12-31	0
10	75.8	1902-12-31	46

Period of record: 1878-01-01 to 2021-01-13

Maximum 1-Year Mean Avg Temperature for McAllen Area, TX (ThreadEx)

Click column heading to sort ascending, click again to sort descending

Rank	Value	Ending Date	Missing Days
1	79.5	2016-12-31	0
2	79.5	2017-12-31	0
3	78.3	2012-12-31	0
4	78.2	2009-12-31	0
5	77.8	2020-12-31	1
6	77.7	2018-12-31	3
7	77.7	2011-12-31	2
8	77.6	2019-12-31	1
9	77.1	1999-12-31	0
10	76.9	1998-12-31	3

Period of record: 1941-06-01 to 2021-01-13

Maximum 1-Year Mean Avg Temperature for HARLINGEN, TX

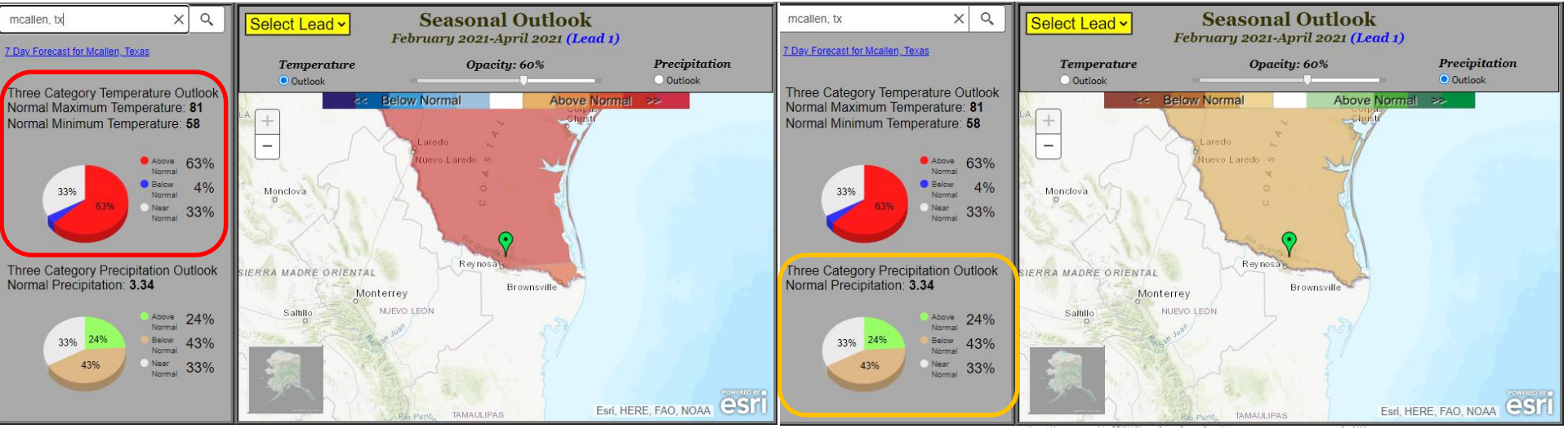
Click column heading to sort ascending, click again to sort descending.

Rank	Value	Ending Date	Missing Days
1	77.4	2017-12-31	36
2	77.0	2020-12-31	34
3	77.0	2016-12-31	17
4	76.6	1945-12-31	18
5	76.4	1946-12-31	26
6	76.4	2012-12-31	14
7	76.3	1957-12-31	10
8	76.3	2019-12-31	47
9	76.3	1950-12-31	1
10	76.0	2006-12-31	13

Period of record: 1912-02-07 to 2021-01-13

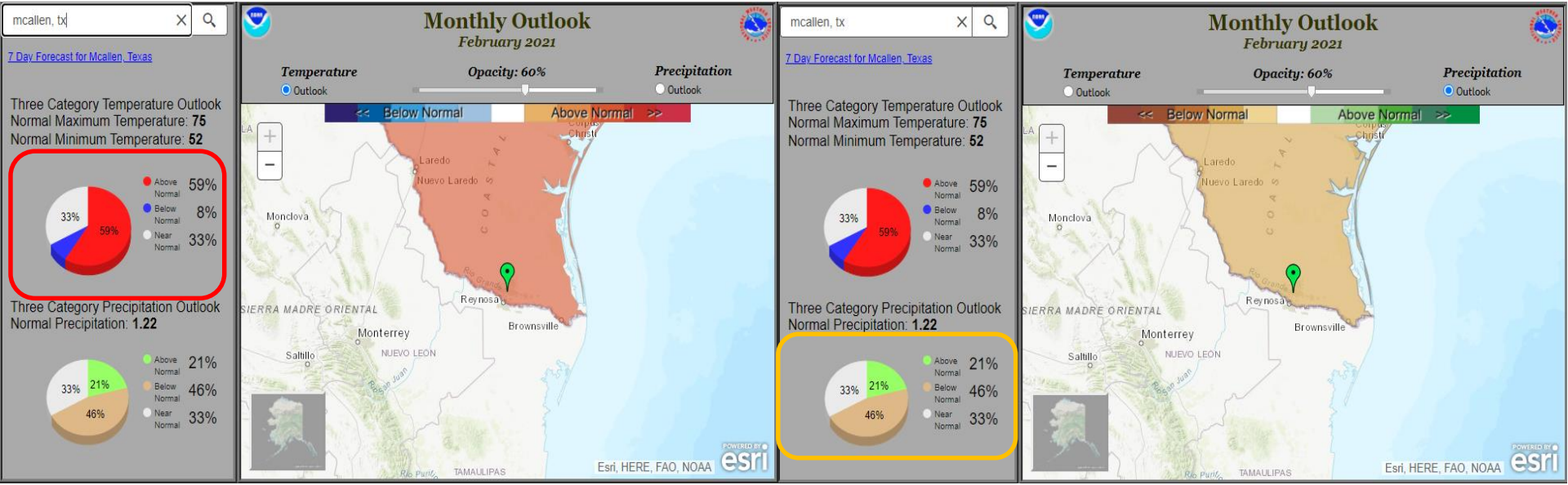
- Brownsville – Five of six warmest years on record (back to 1878), will include **the most recent five (2016-20)**
- McAllen has at least **eight of the top ten warmest years since 2009** (records back to 1942)
- Harlingen missed a number of critical days during hot spells in 2018. **Actual 2018 ranking (not shown) could be in the top five**.

The Feb-Apr 2021 Outlook: Rio Grande Valley (McAllen as Anchor Point)



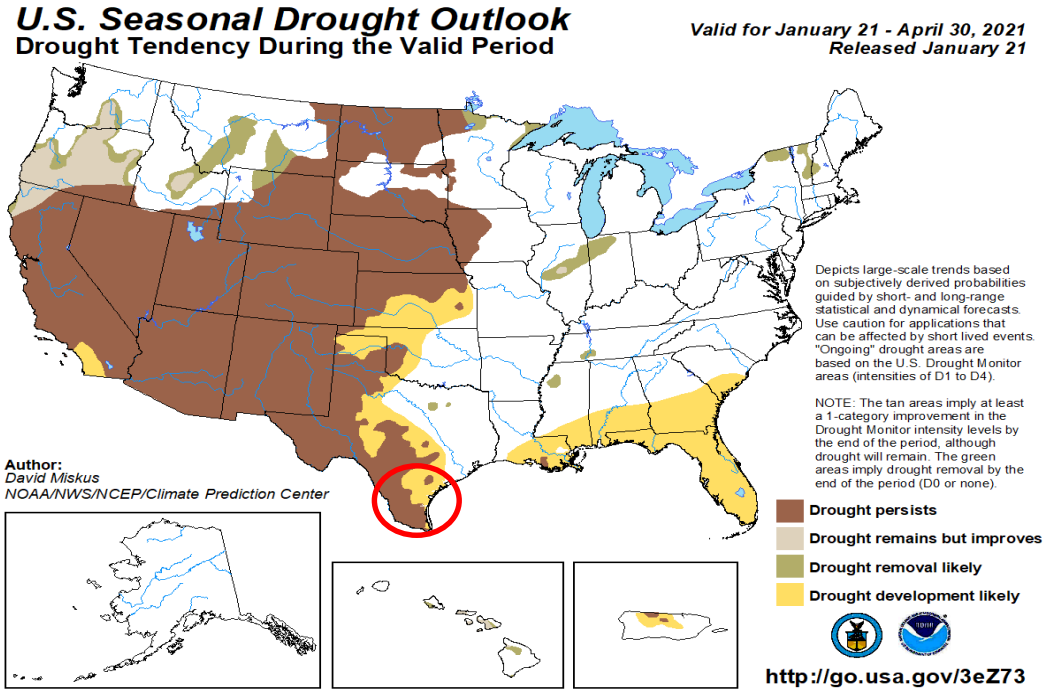
- **Temperature: A 63% chance of *above* average. Seasonal average – Afternoons, Rising from ~73 (on 2/1) to ~89 (on 4/01). Mornings: Rising from 52 (2/1) to the upper 60s (4/30). Just a 4% chance of below average in 2021.**
- **Precipitation: A 43% chance of *below* average. Seasonal average: 3 to 4 inches of rainfall**
- **Probability of above average precipitation is 24 percent.**

February Outlook: Rio Grande Valley (McAllen as Anchor Point)

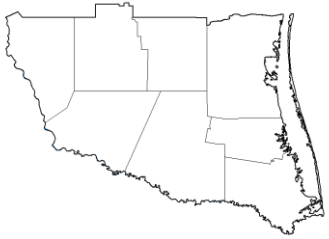


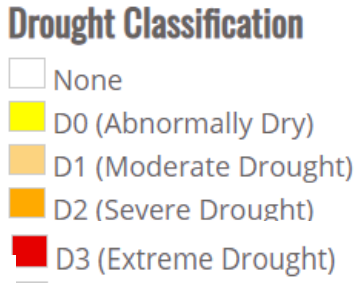
- **Temperature: A 59% chance of ***above*** average. Monthly average – Afternoons, Rising from 73 to 77. Mornings: Rising from 50 to 56 (highest by 28th). Just an 8% chance of below average.**
- **Precipitation: A 46% chance of ***below*** average. Monthly average: 1 to 1.5 inches of rainfall. A 21% chance of above average.**

The “Droughtlook”

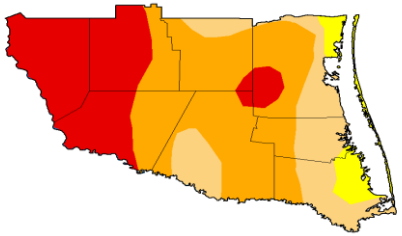


Observed: October 6, 2020

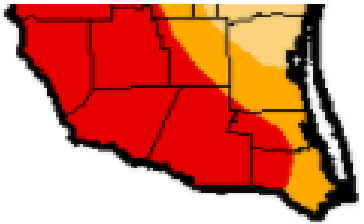




Observed: January 21, 2020



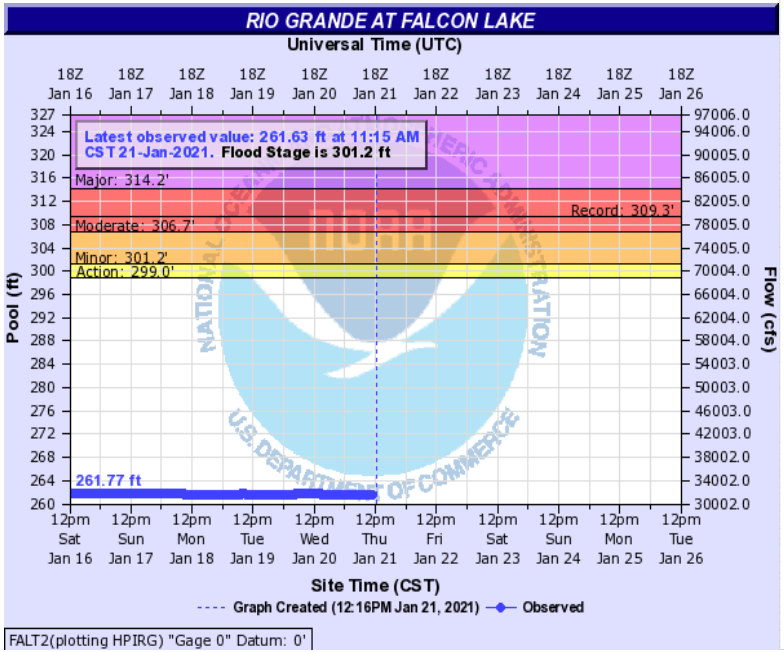
April 26, 2011*

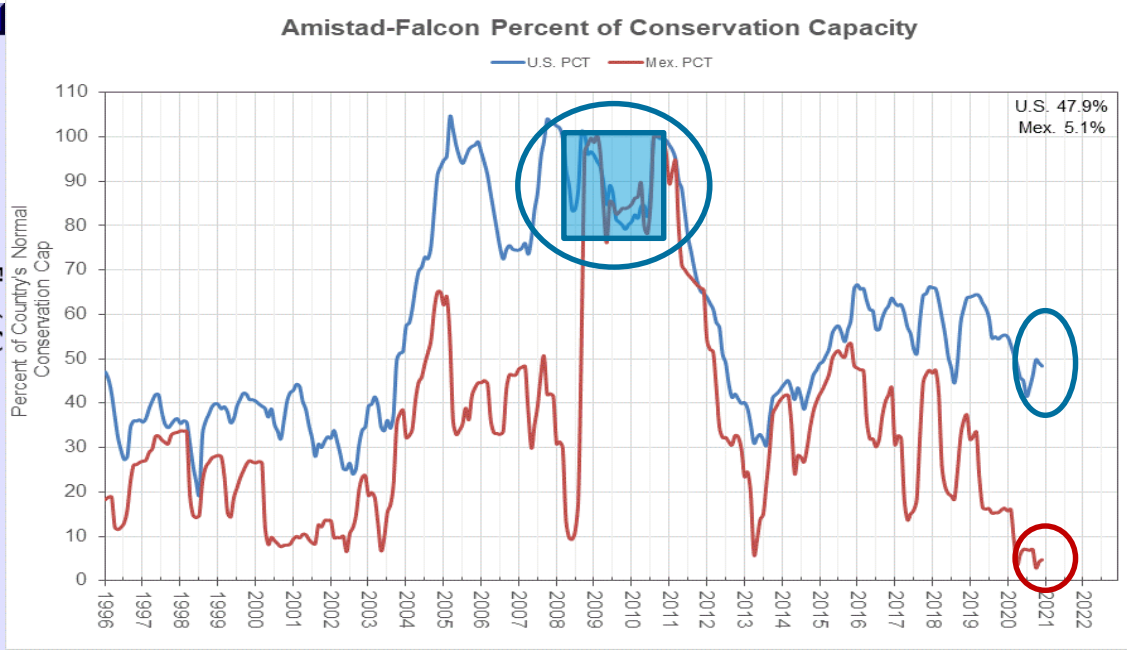


*Analog assumes very warm/dry conditions prevail

- Conditions should deteriorate similar…or more…than 2011 (right).

Falcon Reservoir was low to in early 2021

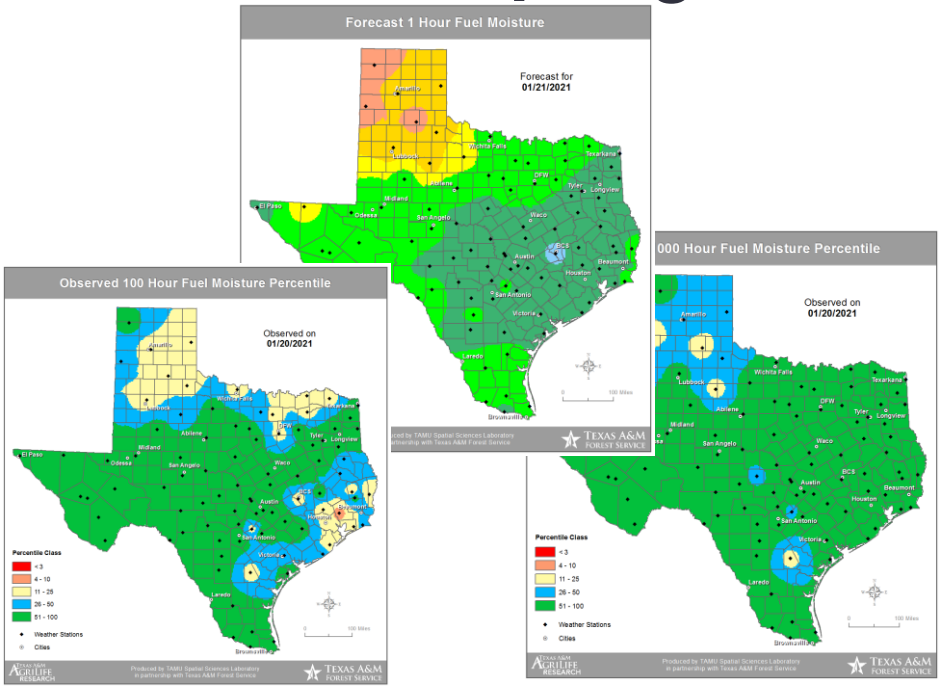




- January 2021 total capacity, Falcon Reservoir: **19 percent**
- January 2011 total capacity, Falcon Reservoir: near **100 percent**

Wildfire Spread Potential Builds into Spring 2021

- 1-hour fuels (grasses) were frequently dry during the first half of January 2021, but moistened temporarily around the 20th. Winter grazing can help reduce this fuel load.
- 10, 100, and 1000 hour fuels (brush and timber) should continue to turn dry into late winter and spring 2021, and be “tinder” for rapid wildfire spread.

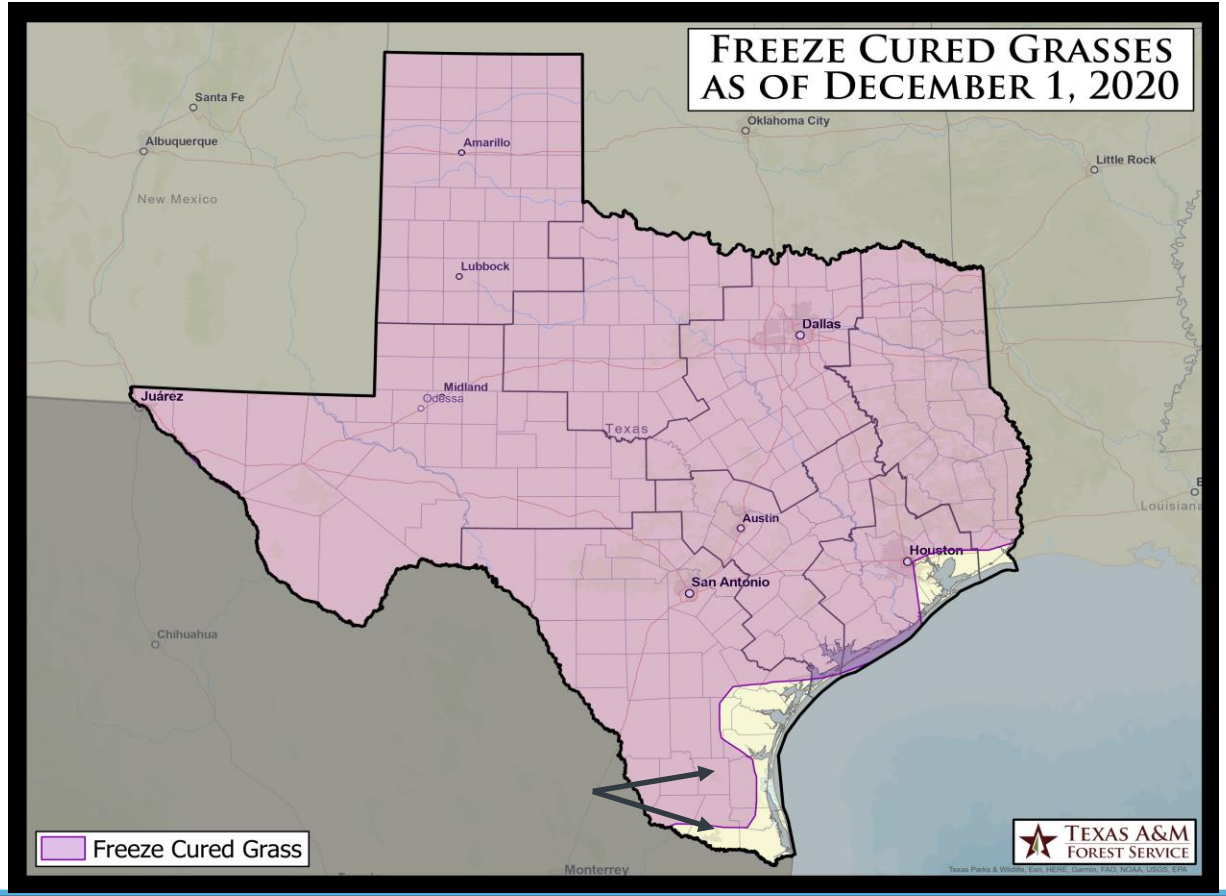


Rio Grande Valley/Deep S. Texas Region should see a resumption of decreasing moisture content for brush and timber (100 and 1000 hour fuels), as evaporation rates increase and beneficial rainfall seldom occurs.

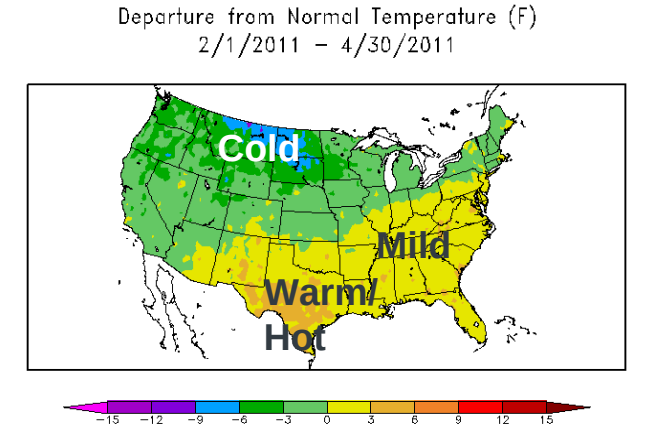
Fuels Remain “Cured” in These Areas

- **Dry/Occasional “Flash Dry” Conditions Have Maintained Curing, Mainly along/west of US 281/IH 69C**

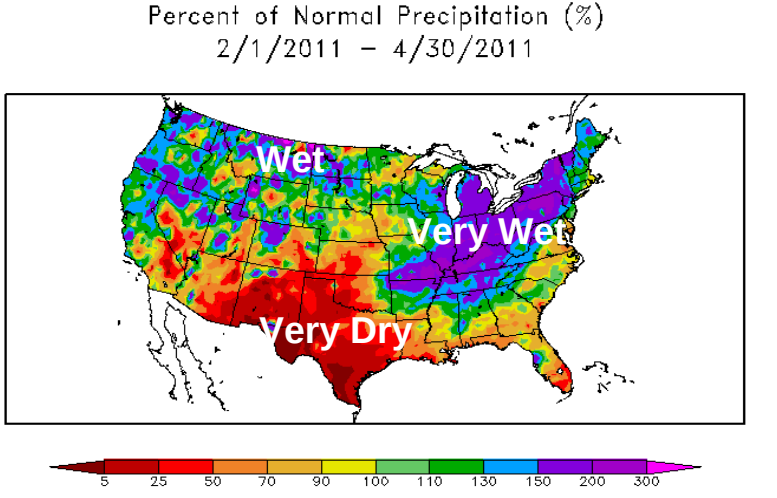
- **Additional Light Freezes (Jan 1, 13, and 16) have exacerabated the issue**



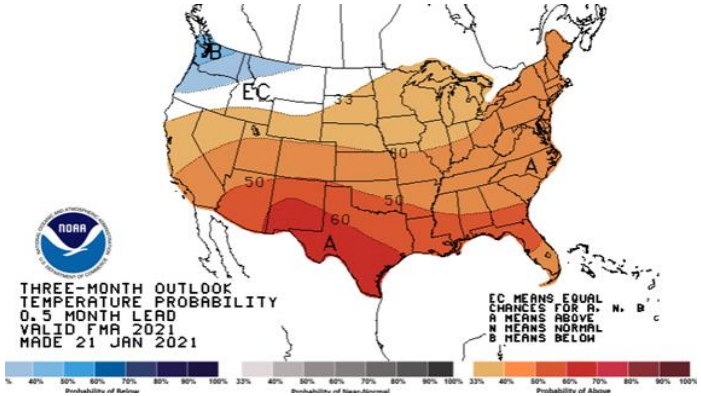
2021 vs. 2011

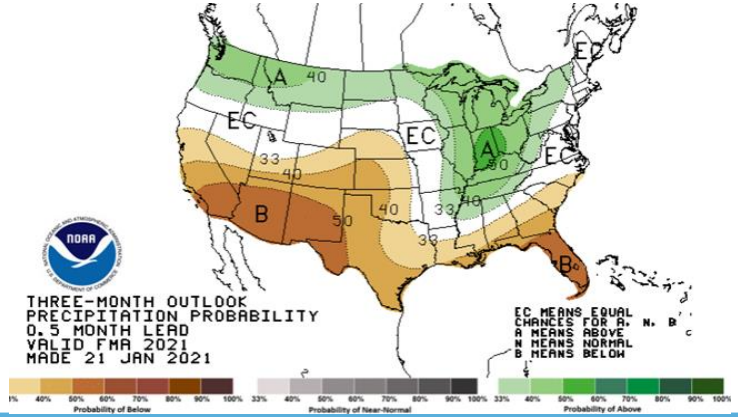


Observed Feb/Apr 2011

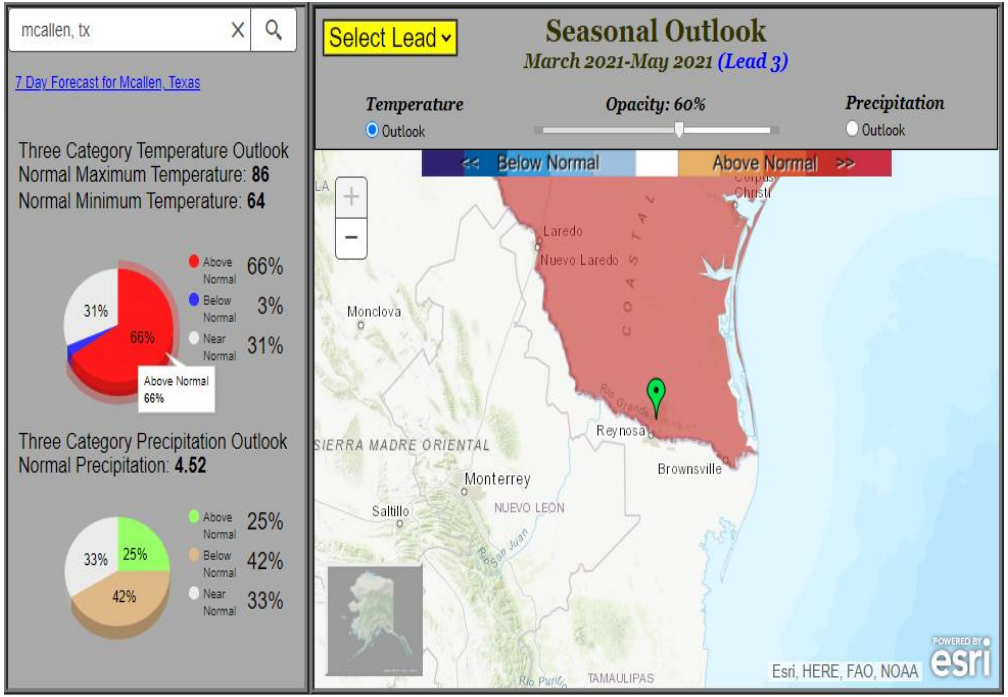


Forecast Feb-Apr 2021

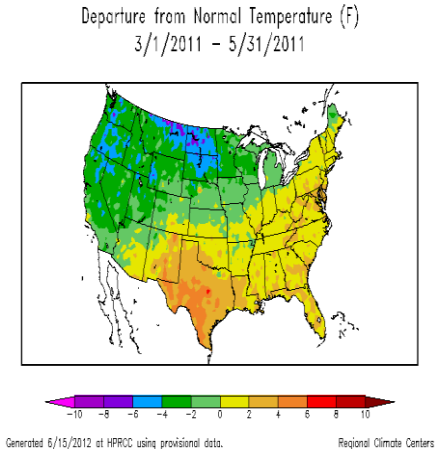


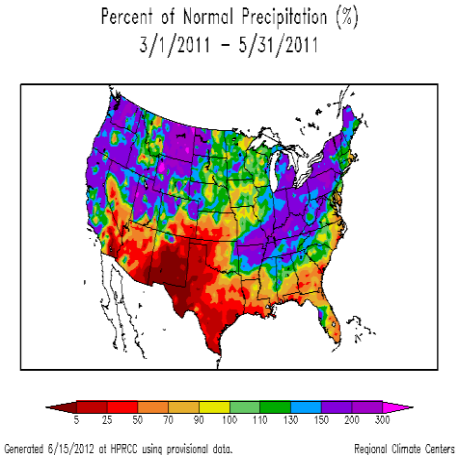


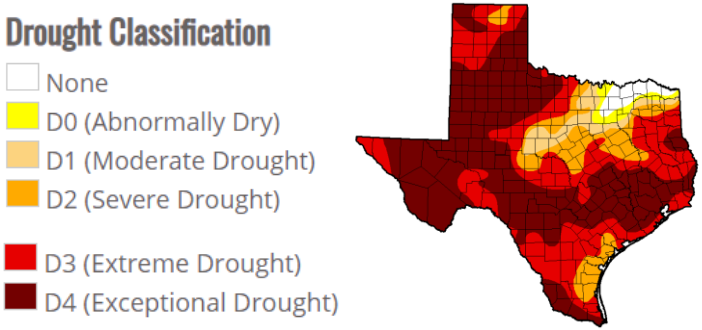
Spring (March-May) 2021 Outlook: It May Look Like 2011



2021 Forecast, March – May (McAllen) – Updated 12/17/2020







Drought, May 31, 2011

In Summary: Impacts and Actions

- Finalize wildland management plans ahead of what is likely to be an active wildfire growth period in spring and perhaps early summer 2021.
- Increasing confidence in **extreme** to locally **exceptional** drought by early mid-spring 2021 (April) means now is the time to look at agriculture and municipal water plans in case of shortages.
- Begin to gear up for early onset of summer-like heat, particularly during April. Heat index, or "feels like" temperatures, could rise above 105 at times. This could cause heat stress in some people due to lack of acclimation.
- Actual temperatures – especially in low level west to southwest flow – could hit 100˚F as early as late February, from Brooks/Hidalgo Counties out to Zapata. Several 100˚F afternoons are possible by the end of April in these areas.